

Notice of Allowability

Application No.

10/708,595

Examiner

Allen C. Ho

Applicant(s)

DANIEL ET AL.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 23 March 2006.
2. ☒ The allowed claim(s) is/are 1-6 and 9-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-6 and 9-20 are allowed.
2. The following is an examiner's statement of reasons for allowance:

With regard to claims 1-6 and 9-14, although the prior art discloses a cooling system comprising a mounting plate comprising a first side and an opposing second side, the mounting plate further defining at least one opening, at least one heat conductor extending through the at least one opening and through at least a portion of a dielectric fluid reservoir defined adjacent the second side of the mounting plate and enclosing an x-ray source, a thermally conductive sleeve coupled to the at least one heat conductor, the thermally conductive sleeve at least partially surrounding the x-ray source, and a heat sink coupled to the first side of the mounting plate, the prior art fails to disclose a thermally conductive sleeve that defines at least one groove, the at least one heat conductor is coupled to the thermally conductive sleeve at a surface of the groove as claimed.

With regard to claims 15-19, although the prior art discloses a cooling system for an imaging system including an x-ray source comprising a mounting plate comprising a first side and an opposing second side, the mounting plate further defines a plurality of openings spaced apart from each other, a plurality of heat pipes extending through the plurality of openings, a plurality of thermally conductive fins coupled to the first side of the mounting plate, the plurality of thermally conductive fins receiving at least a portion of each of the plurality of heat pipes, the prior art fails to teach or fairly suggest that the cooling system further comprises an x-ray shield

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surrounding the x-ray source, the x-ray shield comprising a first end and a second end, the first end defining a plurality of openings receiving the plurality of heat pipes, the first end spaced a distance from the second side of the mounting plate, the second end defining an opening for x-rays from the x-ray source to exit as claimed.

With regard to claim 20, although the prior art discloses a cooling system for an imaging system including an x-ray source comprising a housing defining a dielectric oil reservoir enclosing the x-ray source, a mounting plate comprising a first side and an opposing second side such that the second side defines a boundary of the dielectric oil reservoir, the mounting plate further defining a plurality of openings spaced apart from each other in an arc formation, a plurality of heat pipes extending through the plurality of openings, a plurality of thermally conductive fins arranged parallel to the first side of the mounting plate, the plurality of thermally conductive fins receiving at least a portion of each of the plurality of heat pipes, the prior art fails to teach or fairly suggest that the cooling system further comprises a generally arc-shaped thermally conductive sleeve at least partially surrounding the x-ray source, and an x-ray shield enclosing the generally arc-shaped thermally conductive sleeve and arranged trans-axially thereto with the housing as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

3. Applicant's arguments filed 23 March 2006 with respect to claims 5 and 15 have been fully considered and are persuasive. The objections of claims 5 and 15 have been withdrawn.
4. Applicant's arguments filed 23 March 2006 with respect to claims 1, 3-5, 7, and 13 have been fully considered and are persuasive. The rejection of claims 1, 3-5, 7, and 13 under 35 U.S.C. 102(b) as being anticipated by Kitadate *et al.* has been withdrawn.
5. Applicant's arguments filed 23 March 2006 with respect to claims 1, 2, 6, 7, 13, and 14 have been fully considered and are persuasive. The rejection of claims 1, 2, 6, 7, 13, and 14 under 35 U.S.C. 102(e) as being anticipated by Radley *et al.* has been withdrawn.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
 - (1) Lacey *et al.* (U. S. Pub. No. 2005/0117698 A1) disclosed an apparatus for thermal management of CT electronics (Fig. 6A).
 - (2) Joshi *et al.* (U. S. Pub. No. 2004/0264632 A1) disclosed a detector assembly thermal management system (Fig. 7).
 - (3) Richardson (U. S. Patent No. 6,778,635 B1) disclosed an x-ray tube cooling system (Fig. 4).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho
Primary Examiner
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30 March 2006